## SEQUENCE LISTING

<110>	The University of North Carolina Threadgill, David W Lee, Daekee	
<120>	MODULATION OF EPIDERMAL GROWTH FACTOR HETERODIMER ACTIVITY	
<130>	421/99 PCT/US	
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Homo sapiens

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Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys 65 70 75 80

Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val 85 90 95

Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Met Tyr 100 105 110

Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp Ala Asn 115 120 125

Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu 130 135 140

His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn Val Glu 145 150 155 160

Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser Asn Met 165 170 175

Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys Asp Pro 180 185 190

Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Asn Cys Gln 195 200 205

Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser Gly Arg Cys Arg 210 215 220

Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys 225 230 235 240

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Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His 290 295 300

Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met Glu Glu 305 310 315 320

Asp Gly Val Arg Lys Cys Lys Cys Glu Gly Pro Cys Arg Lys Val 325 330 335

Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Ser Leu Ser Ile Asn 340 345 350

Ala Thr Asn Ile Lys His Phe Lys Asn Cys Thr Ser Ile Ser Gly Asp 355 360 365

Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr His Thr 370 380

Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val Lys Glu 385 390 395 400

Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg Thr Asp 405 410 415

Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln 420 425 430

His Gly Gln Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr Ser Leu 435 440 445

Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser 450 455 460

Gly Asn Lys Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu 465 470 475 480

Phe Gly Thr Ser Gly Gln Lys Thr Lys Ile Ile Ser Asn Arg Gly Glu 485 490 495

Asn Ser Cys Lys Ala Thr Gly Gln Val Cys His Ala Leu Cys Ser Pro 500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Arg Asn 515 520 525

Val Ser Arg Gly Arg Glu Cys Val Asp Lys Cys Asn Leu Leu Glu Gly 530 540

Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro 545 . 550 555 560

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Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val 580 585 590

Lys Thr Cys Pro Ala Gly Val Met Gly Glu Asn Asn Thr Leu Val Trp 595 600 605

Lys Tyr Ala Asp Ala Gly His Val Cys His Leu Cys His Pro Asn Cys 610 615 620

Thr Tyr Gly Cys Thr Gly Pro Gly Leu Glu Gly Cys Pro Thr Asn Gly 625 630 635 640

Pro Lys Ile Pro Ser Ile Ala Thr Gly Met Val Gly Ala Leu Leu Leu 645 650 655

Leu Leu Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg His 660 665 670

Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg Glu Leu 675 680 685

Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala Leu Leu 690 695 700

Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu Gly Ser 705 710 715 720

Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu Gly Glu 725 730 735

Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser 740 745 750

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Thr Val Gln Leu Ile Thr Gln Leu Met Pro Phe Gly Cys Leu Leu Asp 785 790 795 800

Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn 805 810 815

Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp Arg Arg 820 825 830

Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Thr Pro $835 \\ 840 \\ 845$ 

Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu Gly Ala 850 855 860

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Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln Ser Asp 885 890 895

Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ser 900 905 910

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Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr 930 935 940

Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys 945 950 955 960

Phe Arg Glu Leu Ile Ile Glu Phe Ser Lys Met Ala Arg Asp Pro Gln 965 970 975

- Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro Ser Pro 980 985 990
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- Tyr Ser Ser Asp Pro Thr Gly Ala Leu Thr Glu Asp Ser Ile Asp 1070 1075 1080
- Asp Thr Phe Leu Pro Val Pro Glu Tyr Ile Asn Gln Ser Val Pro 1085 1090 1095
- Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln 1100 1105 1110
- Pro Leu Asn Pro Ala Pro Ser Arg Asp Pro His Tyr Gln Asp Pro 1115 1120 1125
- His Ser Thr Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Val Gln 1130 1135 1140
- Pro Thr Cys Val Asn Ser Thr Phe Asp Ser Pro Ala His Trp Ala 1145 1150 1155
- Gln Lys Gly Ser His Gln Ile Ser Leu Asp Asn Pro Asp Tyr Gln 1160 1165 1170
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Ser Ser Glu Phe Ile Gly Ala

1210

1205

120

125

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Met Arg Pro Ser Gly Thr Ala Arg Thr Thr Leu Leu Val Leu Leu Thr  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

<sup>&</sup>lt;210> 4

<sup>&</sup>lt;211> 1210

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Mus musculus

<sup>&</sup>lt;400> 4

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Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro 260 265 270

Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly 275 280 285

Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His 290 295 300

Gly Ser Cys Val Arg Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu 305 310 315 320

Asp Gly Ile Arg Lys Cys Lys Cys Asp Gly Pro Cys Arg Lys Val 325 330 335

Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn 340 345 350

Ala Thr Asn Ile Lys His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp  $355 \hspace{1.5cm} 360 \hspace{1.5cm} 365$ 

Leu His Ile Leu Pro Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr 370 375 380

Pro Pro Leu Asp Pro Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu 385 390 395 400

Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp 405 410 415

Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln 420 425 430

His Gly Gln Phe Ser Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu 435 440 445

Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser 450 460

Gly Asn Arg Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu 465 470 475 480

Phe Gly Thr Pro Asn Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu 485 490 495

Lys Asp Cys Lys Ala Val Asn His Val Cys Asn Pro Leu Cys Ser Ser 500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn 515 520 525

Val Ser Arg Gly Arg Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly 530 535 540

Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro 545 550 555 560

Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro 565 570 575

Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val 580 585 590

Lys Thr Cys Pro Ala Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp  $595 \hspace{1.5cm} 600 \hspace{1.5cm} 605$ 

Lys Tyr Ala Asp Ala Asn Asn Val Cys His Leu Cys His Ala Asn Cys 610 615 620

Thr Tyr Gly Cys Ala Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro 625 630 635 640

Ser Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Ile Val Gly Gly Leu 645 650 655

Leu Phe Ile Val Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg 660 665 670

Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg 675 680 685

Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala 690 695 700

His Leu Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu 705 710 715 720

Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu

725 730 735

Gly Glu Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala 740 745 750

Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met 755 760 765

Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu 770 775 780

Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu 785 790 795 800

Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu 805 810 815

Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp 820 825 830

Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys 835 840 845

Thr Pro Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu 850 855 860

Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile 865 870 875 880

Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln 885 890 895

Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe 900 905 910

Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile 915 920 925

Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp 930 935 940

Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg 945 950 955 960

- Pro Lys Phe Arg Glu Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp 965 970 975
- Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro 980 985 990
- Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp 995 1000 1005
- Met Glu Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln 1010 1015 1020
- Gly Phe Phe Asn Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser 1025 1030 1035
- Ser Leu Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn 1040 1045 1050
- Arg Asn Gly Ser Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg 1055 1060 1065
- Tyr Ser Ser Asp Pro Thr Gly Ala Val Thr Glu Asp Asn Ile Asp 1070 1075 1080
- Asp Ala Phe Leu Pro Val Pro Glu Tyr Val Asn Gln Ser Val Pro 1085 1090 1095
- Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln 1100 1105 1110
- Pro Leu His Pro Ala Pro Gly Arg Asp Leu His Tyr Gln Asn Pro 1115 1120 1125
- His Ser Asn Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Ala Gln 1130 1135 1140
- Pro Thr Cys Leu Ser Ser Gly Phe Asn Ser Pro Ala Leu Trp Ile 1145 1150 1155
- Gln Lys Gly Ser His Gln Met Ser Leu Asp Asn Pro Asp Tyr Gln 1160 1165 1170
- Gln Asp Phe Phe Pro Lys Glu Thr Lys Pro Asn Gly Ile Phe Lys 1175 1180 1185

Ser Ser Glu Phe Ile Gly Ala 1205 <210> 5 <211> 5992 <212> DNA <213> Mus musculus <220> <221> CDS <222> (281)..(3913)<400> ctccccagt cccgacccga gctaactaga cgtctgggca gccccagcgc aacqcqcagc 60 agectecete etettettee egeactgtge geteeteetg ggetagggeg tetggatega 120 gtcccggagg ctaccgcctc ccagacagac gacaggtcac ctggacgcga gcctgtgtcc 180 gggtctcgtc gttgccggcg cagtcactgg gcacaaccgt gggactccgt ctgtctcqga 240 ttaatcccgg agagccagag ccaacctctc ccggtcagag atg cga ccc tca ggg 295 Met Arg Pro Ser Gly acc gcg aga acc aca ctg ctg gtg ttg ctg acc gcg ctc tgc gcc gca 343 Thr Ala Arg Thr Thr Leu Leu Val Leu Leu Thr Ala Leu Cys Ala Ala 10 ggt ggg gcg ttg gag gaa aag aaa gtc tgc caa ggc aca agt aac agg 391 Gly Gly Ala Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser Asn Arg ctc acc caa ctg ggc act ttt gaa gac cac ttt ctg agc ctg cag agg 439 Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu Gln Arg 40 45 atg tac aac aac tgt gaa gtg gtc ctt ggg aac ttg gaa att acc tat 487 Met Tyr Asn Asn Cys Glu Val Val Leu Gly Asn Leu Glu Ile Thr Tyr gtg caa agg aat tac gac ctt tcc ttc tta aag acc atc cag gag gtg 535 Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln Glu Val gcc ggc tat gtc ctc att gcc ctc aac acc gtg gag aga atc cct ttg 583 Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile Pro Leu 90 95 100 gag aac ctg cag atc atc agg gga aat gct ctt tat gaa aac acc tat 631 Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu Tyr Glu Asn Thr Tyr

Gly Pro Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val Ala Pro Pro

1195

1190

110

105

					tcc Ser											679
	_		_		aac Asn		_	_		_			_		_	727
	_				atc Ile 155		_		-	_			_			775
-		_			gtc Val		_	-		_		_	-		_	823
					tgc Cys											871
_	_				gga Gly				_	_		_				919
	_	_	_		tgt Cys			_	_	_					_	967
					caa Gln 235									_		1015
_	-	_	_	-	tgc Cys		_			_		_		-		1063
					ctc Leu											1111
					G]A aaa											1159
	_		-		tac Tyr				_				_	_	_	1207
					tac Tyr 315											1255
					ggg Gly											1303
att Ile	ggt Gly	gaa Glu	ttt Phe 345	aaa Lys	gac Asp	aca Thr	ctc Leu	tcc Ser 350	ata Ile	aat Asn	gct Ala	aca Thr	aac Asn 355	atc Ile	aaa Lys	1351

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	_		-	 gat Asp		_	_				_	144
				cta Leu 395								149
				cct Pro								1543
		_		cgt Arg	 _		_			_		1593
_		_	-	 ctg Leu				_	 _	_		1639
				ggg Gly								168
-		_		ata Ile 475								173
				atg Met								1783
				aat Asn								1831
				tgt Cys								1879
				tgc Cys								1927
				tgc Cys 555								1975
				tgt Cys								2023
				gat Asp								2071

					aac Asn											211
		_	_		cta Leu					_				_	_	216
					gga Gly 635									_		221!
					Gly											2263
	_				ggc Gly			_	_	_	_			_	_	231
					cgc Arg											2359
			-		gaa Glu	-				_		_				2407
_	_		_		aaa Lys 715	_			_	_		_		_		2455
					ggt Gly											2503
					aag Lys			-	-	-					-	2551
					gac Asp											2599
					ctc Leu											2647
					atg Met 795											2695
					att Ile											2743
cag Gln	att Ile	gca Ala	aag Lys 825	ggc Gly	atg Met	aac Asn	tac Tyr	ctg Leu 830	gaa Glu	gat Asp	cgg Arg	cgt Arg	ttg Leu 835	gtg Val	cac His	2791

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_					_	_		_			_	_		aaa Lys	2887
-			_	 						-			_	ttg Leu 885	2935
														agc Ser	2983
													Pro	tat Tyr	3031
														gag Glu	3079
														atg Met	3127
														gag Glu 965	3175
														ctt Leu	3223
													Asp	tcc Ser	3271
		tac Tyr 1000	Arg	 _	_		G]			ac at sp Me	et Gl		gat Asp	_	3316
			Asp				e Pr			aa go Ln Gl	y Ph		ttc Phe		3361
		tcc Ser 1030	Thr				) Le			gt to er Se	er Le		agt Ser		3406
		aac Asn 1045	Asn				ı C <u>y</u>			at ag sn Ar	g As		Gly ggg	-	3451
	_	gtc Val 1060	Lys	gac Asp			. L∈	_	_	gg ta gg Ty	r Se		tcc Ser	-	3496

ccc aca ggt gct Pro Thr Gly Ala 1075								3541		
cct gta cct gaa Pro Val Pro Glu 1090	tat gta aad Tyr Val Asi		_	ccc aag Pro Lys		cca Pro	_	3586		
ggc tct gtg cag Gly Ser Val Gln 1105	aac cct gto Asn Pro Vai			cag ccc Gln Pro	_	cat His		3631		
gct cct gga aga Ala Pro Gly Arg 1120						aat Așn	-	3676		
gtg ggc aac cct Val Gly Asn Pro 1135	gag tat cto Glu Tyr Leo			cag cct Gln Pro		tgt Cys		3721		
agt agt ggg ttt Ser Ser Gly Phe 1150	_	-		_		ggc Gly	-	3766		
	cta gac aad Leu Asp Asr							3811		
	aag cca aat Lys Pro Asr					aca Thr	_	3856		
gaa aat gca gag Glu Asn Ala Glu 1195	tac cta cgo Tyr Leu Aro					gag Glu		3901		
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Gly Thr Ser Asn Arg Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe 35 40 45

Leu Ser Leu Gln Arg Met Tyr Asn Asn Cys Glu Val Val Leu Gly Asn 50 55 60

Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys 70 75 80

Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val 85 90 95

Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu 100 105 110

Tyr Glu Asn Thr Tyr Ala Leu Ala Ile Leu Ser Asn Tyr Gly Thr Asn 115 120 125

Arg Thr Gly Leu Arg Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu 130 135 140

Ile Gly Ala Val Arg Phe Ser Asn Asn Pro Ile Leu Cys Asn Met Asp 145 150 155 160

Thr Ile Gln Trp Arg Asp Ile Val Gln Asn Val Phe Met Ser Asn Met 165 170 175

Ser Met Asp Leu Gln Ser His Pro Ser Ser Cys Pro Lys Cys Asp Pro 180 185 190

Ser Cys Pro Asn Gly Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln 195 200 205

Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser His Arg Cys Arg 210 215 220

Gly Arg Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys 225 230 235 240

Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Gln Lys Phe Gln Asp 245 250 255

Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro 260 265 270

Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly 275 280 285

Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His 290 295 300

Gly Ser Cys Val Arg Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu 305 310 315 320

Asp Gly Ile Arg Lys Cys Lys Cys Asp Gly Pro Cys Arg Lys Val 325 330 335

Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn 340 345 350

Ala Thr Asn Ile Lys His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp 355 360 365

Leu His Ile Leu Pro Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr 370 375 380

Pro Pro Leu Asp Pro Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu 385 390 395 400

Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp 405 410 415

Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln 420 425 430

His Gly Gln Phe Ser Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu 435 440 445

Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser 450 460

Gly Asn Arg Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu 465 470 475 480

Phe Gly Thr Pro Asn Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu 485 490 495

Lys Asp Cys Lys Ala Val Asn His Val Cys Asn Pro Leu Cys Ser Ser 500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn 515 520 525

Val Ser Arg Gly Arg Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly 530 535 540

Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro 545 550 555 560

Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro 565 570 575

Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val $580 \hspace{1.5cm} 585 \hspace{1.5cm} 590$ 

Lys Thr Cys Pro Ala Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp 595 600 605

Lys Tyr Ala Asp Ala Asn Asn Val Cys His Leu Cys His Ala Asn Cys 610 620

Thr Tyr Gly Cys Ala Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro 625 630 635 640

Ser Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Ile Val Gly Gly Leu 645 650 655

Leu Phe Ile Val Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg 660 665 670

Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg 675 680 685

Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala 690 695 700

His Leu Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu 705 710 715 720

Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu 725 730 735

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Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu 770 775 780

Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu 785 790 795 800

Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu 805 810 815

Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp 820 825 830

Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys 835 840 845

Thr Pro Gln His Val Lys Ile Thr Gly Phe Gly Leu Ala Lys Leu Leu 850 855 860

Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile 865 870 875 880

Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln 885 890 895

Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe 900 905 910

Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile 915 920 925

Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp 930 935 940

Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg 945 950 955 960

Pro Lys Phe Arg Glu Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp 965 970 975

- Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro 980 985 990
- Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp 995 1000 1005
- Met Glu Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln 1010 1015 1020
- Gly Phe Phe Asn Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser 1025 1030 1035
- Ser Leu Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn 1040 1045 1050
- Arg Asn Gly Ser Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg 1055 1060 1065
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- Lys Arg  $\mbox{ Pro Ala Gly Ser Val }\mbox{ Gln Asn Pro Val Tyr }\mbox{ His Asn Gln }\mbox{ 1100} \mbox{ }\mbox{ 1105} \mbox{ }\mbox{ }\mbox{ }\mbox{ 1110}$
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- His Ser Asn Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Ala Gln 1130 1135 1140
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His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu Val 260 265 270

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Tyr Thr Phe Gly Ala Ser Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu 290 295 300

Ser Thr Asp Val Gly Ser Cys Thr Leu Val Cys Pro Leu His Asn Gln 305 310 315 320

Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys 325 330 335

Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg Glu 340 345 350

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Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp  $370 \hspace{1.5cm} 375 \hspace{1.5cm} 380$ 

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Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro 405 410 415

Asp Ser Leu Pro Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg 420 425 430

Gly Arg Ile Leu His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu 435 440 445

Gly Ile Ser Trp Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly 450 455 460

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Gln Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln Cys 515 520 525

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Arg Val Leu Gln Gly Leu Pro Arg Glu Tyr Val Asn Ala Arg His Cys 545 550 555 560

Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Gly Ser Val Thr Cys 575 Cys

Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys Ala His Tyr Lys Asp 580 Pro Pro Pro Pro Pro Pro Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp Leu 605 Fro Glo Pro Cys Pro Ile Trp Lys Phe Pro Asp Glu Glu Gly Ala Cys Gln 610 Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Asp Lys 635 Pro Ala Glu Glu Gly Ala Cys Glo Gly Cys Pro Ala Glu Glu Gly Asp Asp Lys 635 Pro Ala Glu Glu Gly Asp Asp Lys 635 Pro Ala Glu Glu Glu Gly Asp Asp Lys 635 Pro Ala Glu Glu Glu Gly Asp Asp Lys 635 Pro Ala Glu Glu Glu Gly Ala Cys Pro Ala Glu Glu Glu Glu Gly Asp Asp Lys 635 Pro Ala Glu Glu Glu Glu Gly Asp Asp Lys 640

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Arg Lys Val Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys 725 730 735

Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile 740 745 750

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Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu 785 790 795 800

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Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr 50 55 60

Leu Pro Ala Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val 65 70 75 80

Gln Gly Tyr Met Leu Ile Ala His Asn Arg Val Lys His Val Pro Leu 85 90 95

Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Lys Tyr 100 105 110

Ala Leu Ala Val Leu Asp Asn Arg Asp Pro Leu Asp Asn Val Thr Thr
115 120 125

Ala Ala Pro Gly Arg Thr Pro Glu Gly Leu Arg Glu Leu Gln Leu Arg 130 135 140

Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Arg Gly Asn Pro Gln Leu Cys Tyr Gln Asp Met Val Leu Trp Lys Asp Val Leu Arg Lys Asn Asn Gln Leu Ala Pro Val Asp Met Asp Thr Asn Arg Ser Arg Ala Cys Pro Pro Cys Ala Pro Thr Cys Lys Asp Asn His Cys Trp Gly Glu Ser Pro Glu Asp Cys Gln Ile Leu Thr Gly Thr Ile Cys Thr Ser Gly Cys Ala Arg Cys Lys Gly Arg Leu Pro Thr Asp Cys Cys His Glu Gln Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys Leu His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu Ile Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Leu Asn Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Thr Cys Pro Tyr Asn Tyr Leu Ser Thr Glu Val Gly Ser Cys Thr Leu Val Cys Pro Pro Asn Asn Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys Pro Cys Ala Gly Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg Gly Ala Arg Ala Ile Thr Ser Asp Asn Ile Gln Glu Phe Ala Gly Cys Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly 

Asn Pro Ser Ser Gly Val Ala Pro Leu Lys Pro Glu His Leu Gln Val Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Glu Ser Phe Gln Asp Leu Ser Val Phe Gln Asn Leu Arg Val Ile Arg Gly Arg Ile Leu His Asp Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile His Ser Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly Leu Ala Leu Ile His Arg Asn Thr His Leu Cys Phe Val Asn Thr Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His Ser Gly Asn Arg Pro Glu Glu Ala Cys Gly Leu Glu Gly Leu Val Cys Asn Ser Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln Cys Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu Cys Val Glu Glu Cys Arg Val Trp Lys Gly Leu Pro Arg Glu Tyr Val Arg Gly Lys His Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Ser Ser Glu Thr Cys Tyr Gly Ser Glu Ala Asp Gln Cys Glu Ala Cys Ala His Tyr Lys Asp Ser Ser Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp Lys Tyr Pro Asp Glu Glu Gly Ile Cys 

Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Glu Arg Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Val Thr Phe Ile Ile Ala Thr Val Val Gly Val Leu Leu Phe Leu Ile Ile Val Val Val Ile Gly Ile Leu Ile Lys Arg Arg Gln Lys Ile Arg Lys Tyr Thr Met Arg Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Ala Val Pro Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg Leu Cly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg Glu His Arg Gly Arg Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Ser Tyr Leu Glu Glu Val Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp 

- Phe Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala 865 870 875 880
- Asp Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu 885 890 895
- Arg Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr 900 905 910
- Val Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro 915 920 925
- Ala Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln 930 935 940
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- Met Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu Leu Val Ser Glu 965 970 975
- Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn 980 985 990
- Glu Asp Leu Gly Pro Ser Ser Pro Met Asp Ser Thr Phe Tyr Arg Ser 995 1000 1005
- Leu Leu Glu Asp Asp Met Gly Glu Leu Val Asp Ala Glu Glu 1010 1015 1020
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- Arg Ser Gly Gly Glu Leu Thr Leu Gly Leu Glu Pro Ser Glu 1055 1060 1065
- Glu Glu Pro Pro Arg Ser Pro Leu Ala Pro Ser Glu Gly Ala Gly 1070 1075 1080
- Ser Asp Val Phe Asp Gly Asp Leu Ala Val Gly Val Thr Lys Gly 1085 1090 1095

Leu Gln Ser Leu Ser Pro His Asp Leu Ser Pro Leu Gln Arg Tyr 1100 1105 Ser Glu Asp Pro Thr Leu Pro Leu Pro Pro Glu Thr Asp Gly Tyr 1115 1120 Val Ala Pro Leu Ala Cys Ser Pro Gln Pro Glu Tyr Val Asn Gln 1135 Pro Glu Val Arg Pro Gln Ser Pro Leu Thr Pro Glu Gly Pro Pro 1150 Pro Pro Ile Arg Pro Ala Gly Ala Thr Leu Glu Arg Pro Lys Thr 1165 1170 Leu Ser Pro Gly Lys Asn Gly Val Val Lys Asp Val Phe Ala Phe 1175 1180 Gly Gly Ala Val Glu Asn Pro Glu Tyr Leu Ala Pro Arg Ala Gly 1195 Thr Ala Ser Gln Pro His Pro Ser Pro Ala Phe Ser Pro Ala Phe 1210 1215 Asp Asn Leu Tyr Tyr Trp Asp Gln Asn Ser Ser Glu Gln Gly Pro 1220 1225 1230 Pro Pro Ser Thr Phe Glu Gly Thr Pro Thr Ala Glu Asn Pro Glu 1235 1240 1245 Tyr Leu Gly Leu Asp Val Pro Val 1250 1255 <210> 14 <211> 5511 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (194)..(4222)

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					cgc Arg											997
					ccc Pro											1045
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_	_		_	_	cct Pro		-	_	_	_	_	_				1141
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					att Ile											1477
					aag Lys											1525
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	agt Ser											24	85
	cat His											25	33
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	aag Lys											28	21
	ctt Leu 880											28	69
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gtc Val 1185	Leu				gaa Glu 1190										3790
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agt Ser 1215					ctg Leu 1220										3880
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Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Glu Asn Gln Tyr Gln Thr 35 40 45

Leu Tyr Lys Leu Tyr Glu Arg Cys Glu Val Val Met Gly Asn Leu Glu 50 55 60

Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile 65 70 75 80

Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Thr  $85 \hspace{1cm} 90 \hspace{1cm} 95$ 

Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr Gln Val Tyr Asp 100 105 110

Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser 115 120 125

His Ala Leu Arg Gln Leu Arg Leu Thr Gln Leu Thr Glu Ile Leu Ser 130 135 140

Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr 145 150 155 160

Ile Asp Trp Arg Asp Ile Val Arg Asp Arg Asp Ala Glu Ile Val Val 165 170 175

Lys Asp Asn Gly Arg Ser Cys Pro Pro Cys His Glu Val Cys Lys Gly
180 185 190

Arg Cys Trp Gly Pro Gly Ser Glu Asp Cys Gln Thr Leu Thr Lys Thr 195 200 205

Ile Cys Ala Pro Gln Cys Asn Gly His Cys Phe Gly Pro Asn Pro Asn 210 215 220

Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp 225 230 235 240

Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val 245 250 255

Pro Arg Cys Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu 260 265 270

Glu Pro Asn Pro His Thr Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala 275 280 285

Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Ser Cys Val Arg Ala 290 295 300

Cys Pro Pro Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys 305 310 315 320

Glu Pro Cys Gly Gly Leu Cys Pro Lys Ala Cys Glu Gly Thr Gly Ser 335

Gly Ser Arg Phe Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val 340

Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu 355 360 365

Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu 370 375 380

Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln 385 390 395 400

Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr 405 410 415

Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile 420 425 430

Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu 435 440 445

Ile Ser Ala Gly Arg Ile Tyr Ile Ser Ala Asn Arg Gln Leu Cys Tyr 450 460

His His Ser Leu Asn Trp Thr Lys Val Leu Arg Gly Pro Thr Glu Glu 465 470 475 480

Arg Leu Asp Ile Lys His Asn Arg Pro Arg Arg Asp Cys Val Ala Glu 485 490 495

Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro 500 505 510

Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Gly Gly Val 515 520 525

Cys Val Thr His Cys Asn Phe Leu Asn Gly Glu Pro Arg Glu Phe Ala 530 535 540

His Glu Ala Glu Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu 545 550 555 560

Gly Thr Ala Thr Cys Asn Gly Ser Gly Ser Asp Thr Cys Ala Gln Cys 565 570 575

Ala His Phe Arg Asp Gly Pro His Cys Val Ser Ser Cys Pro His Gly 580 585 590

Val Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Val Gln Asn 595 600 605

Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro 610 620

Glu Leu Gln Asp Cys Leu Gly Gln Thr Leu Val Leu Ile Gly Lys Thr 625 630 635 640

His Leu Thr Met Ala Leu Thr Val Ile Ala Gly Leu Val Val Ile Phe 645 650 655

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Asn Lys Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu 675 680 685

Pro Leu Asp Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe 690 695 700

Lys Glu Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe 705 710 715 720

Gly Thr Val His Lys Gly Val Trp Ile Pro Glu Gly Glu Ser Ile Lys 725 730 735

Ile Pro Val Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser 740 745 750

Phe Gln Ala Val Thr Asp His Met Leu Ala Ile Gly Ser Leu Asp His 755 760 765

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- Gln His Arg Gly Ala Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val 805 810 815
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- Arg Asn Leu Ala Ala Arg Asn Val Leu Leu Lys Ser Pro Ser Gln Val 835 840 845
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- His Gly Leu Thr Asn Lys Lys Leu Glu Glu Val Glu Leu Glu Pro Glu 995 1000 1005
- Leu Asp Leu Asp Leu Glu Ala Glu Glu Asp Asn Leu Ala 1010 1015 1020
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Met Gly Ala Cys Pro Ala Ser Glu Gln Gly Tyr Glu Glu Met Arg 1280 1285 1290	
Ala Phe Gln Gly Pro Gly His Gln Ala Pro His Val His Tyr Ala 1295 1300 1305	
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ctg tac aaa ctc tat gag aag tgt gag gtg gtc atg ggt aac ctg gag 1 Leu Tyr Lys Leu Tyr Glu Lys Cys Glu Val Val Met Gly Asn Leu Glu 50 55 60	92
att gtg ctt acg gga cac aat gct gat ctt tcc ttc ctg caa tgg atc Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile 65 70 75 80	40
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ggc Gly	aaa Lys	gtg Val	tgt Cys 500	gat Asp	cca Pro	ctg Leu	tgc Cys	tcc Ser 505	tct Ser	GJÀ aaa	gga Gly	tgc Cys	tgg Trp 510	ggc Gly	cca Pro		1536
					ttg Leu											:	1584
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cat His 545	gag Glu	gct Ala	cat His	tgc Cys	ttc Phe 550	tcc Ser	tgc Cys	cat His	cca Pro	gaa Glu 555	tgc Cys	cag Gln	ccc Pro	atg Met	gag Glu 560	:	1680
					aat Asn												1728

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						ggc Gly										192	20
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						tat Tyr										201	L 6
						ttg Leu										206	54
						aac Asn 695										211	l 2
						aag Lys										216	50
						att Ile										220	)8
gtc Val	tgc Cys	att Ile	aaa Lys 740	gtc Val	atc Ile	gag Glu	gac Asp	aag Lys 745	agt Ser	GJÀ aàa	cgg Arg	cag Gln	agt Ser 750	ttt Phe	cag Gln	225	56
						ctg Leu										230	)4
						ctg Leu 775										235	52
						ggc Gly										240	0 (
cgt Arg	gag Glu	aca Thr	ctg Leu	gga Gly 805	cca Pro	cag Gln	ctg Leu	ctg Leu	ctc Leu 810	aac Asn	tgg Trp	gga Gly	gta Val	caa Gln 815	att Ile	244	8

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	gcg c Ala L 8					_		_		_	_		_	_		2544
	gat t Asp P 850															2592
	cac a His S			_	_							_			-	2640
	cac t His P	_						_	_	_	-		_			2688
_	acc g Thr V	al T			_	_				_				_		2736
	cga c Arg L 9		_	_			-	_	_		_					2784
	cag c Gln P 930				_			_	_		-	-	-	-	_	2832
	tgg a Trp M															2880
	gag t Glu P		Chr		-	-		_					_	_		2928
_	aga g Arg A	la S	_							_	_				_	2976
	agc a Ser T							Ala					) As		g gac eu Asp	3024
	gac Asp 1010				gag Glu		Gl	a ga u Gl			y Le		gcg a Ala T			3069
_							Pr	t ac o Th			r Le		icc c			3114
-		_	_	_	ctt Leu		Se	t cc r Pr		-	r Gl		ac a 'yr M	_		3159

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						acg Thr 1090									3294
_	ggc Gly 1100			_	_	ctc Leu 1105			_	_		_	tgt Cys		3339
-	cgg Arg 1115	_		-		agc Ser 1120				_		-	-	-	3384
	cat His 1130					agc Ser 1135							ccg Pro		3429
	cca Pro 1145					gaa Glu 1150									3474
	gat Asp 1160					ggt Gly 1165									3519
	tcg Ser 1175					agt Ser 1180							gag Glu		3564
						gaa Glu 1195									3609
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	gag Glu 1220					ggt Gly 1225									3699
	acg Thr 1235					ctc Leu 1240									3744
_	ggc Gly 1250					gag Glu 1255									3789
						gga Gly 1270									3834

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,,,	cct Pro 1295					ccc Pro 1300								3924
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Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Asp Asn Gln Tyr Gln Thr 35 40 45

Leu Tyr Lys Leu Tyr Glu Lys Cys Glu Val Val Met Gly Asn Leu Glu 50 55 60

Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile 70 75 80

Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Val 85 90 95

Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr Gln Val Tyr Asp 100 105 110

Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser 115 120 125

His Ala Leu Arg Gln Leu Arg Phe Thr Gln Leu Thr Glu Ile Leu Leu Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr Ile Asp Trp Arg Asp Ile Val Arg Val Pro Asp Ala Glu Ile Val Val Lys Asn Asn Gly Gly Asn Cys Pro Pro Cys His Glu Val Cys Lys Gly Arg Cys Trp Gly Pro Gly Pro Glu Asp Cys Gln Ile Leu Thr Lys Thr Ile Cys Ala Pro Gln Cys Asn Gly Arg Cys Phe Gly Pro Asn Pro Asn Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val Pro Arg Cys Pro Ala Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu Glu Pro Asn Pro His Ile Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Phe Cys Val Arg Ala Cys Pro Ala Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys Glu Pro Cys Arg Gly Leu Cys Pro Lys Ala Cys Glu Gly Thr Gly Ser Gly Ser Arg Tyr Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val 

Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu

Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu 370 380

Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln 385 390 395 400

Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr 405 410 415

Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile 420 425 430

Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu 435 440 445

Ile Ser Ala Gly Arg Val Tyr Ile Ser Ala Asn Gln Gln Leu Cys Tyr 450 455 460

His His Ser Leu Asn Trp Thr Arg Leu Leu Arg Gly Pro Ala Glu Glu 465 470 475 480

Arg Leu Asp Ile Lys Tyr Asn Arg Pro Leu Gly Glu Cys Val Ala Glu 485 490 495

Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro 500 505 510

Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Glu Gly Val 515 520 525

Cys Val Thr His Cys Asn Val Leu Gln Gly Glu Pro Arg Glu Phe Val 530 535 540

His Glu Ala His Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu 545 550 555 560

Gly Thr Ser Thr Cys Asn Gly Ser Gly Ser Asp Ala Cys Ala Arg Cys 565 570 575

Ala His Phe Arg Asp Gly Pro His Cys Val Asn Ser Cys Pro His Gly 580 585 590

Ile Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Ala Gln Asn 595 600 605

Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro 610 620

Glu Leu Gln Asp Cys Leu Gly Gln Ala Glu Val Leu Met Ser Lys Pro 625 630 635 640

His Leu Val Ile Ala Val Thr Val Gly Leu Thr Val Ile Phe Leu Ile 645 650 655

Leu Gly Gly Ser Phe Leu Tyr Trp Arg Gly Arg Arg Ile Gln Asn Lys 660 665 670

Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu Pro Leu 675 680 685

Asp Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe Lys Glu 690 695 700

Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe Gly Thr 705 710 715 720

Val His Lys Gly Ile Trp Ile Pro Glu Gly Glu Ser Ile Lys Ile Pro
725 730 735

Val Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser Phe Gln 740 745 750

Ala Val Thr Asp His Met Leu Ala Val Gly Ser Leu Asp His Ala His 755 760 765

Ile Val Arg Leu Leu Gly Leu Cys Pro Gly Ser Ser Leu Gln Leu Val 770 . 775 780

Thr Gln Tyr Leu Pro Leu Gly Ser Leu Leu Asp His Val Arg Gln His 785 790 795 800

Arg Glu Thr Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val Gln Ile 805 810 815

Ala Lys Gly Met Tyr Tyr Leu Glu Glu His Ser Met Val His Arg Asp 820 825 830

Leu Ala Leu Arg Asn Val Met Leu Lys Ser Pro Ser Gln Val Gln Val 835 840 845

- Ala Asp Phe Gly Val Ala Asp Leu Leu Pro Pro Asp Asp Lys Gln Leu 850 855 860
- Leu His Ser Glu Ala Lys Thr Pro Ile Lys Trp Met Ala Leu Glu Ser 865 870 875 880
- Ile His Phe Gly Lys Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly 885 890 895
- Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Glu Pro Tyr Ala Gly 900 905 910
- Leu Arg Leu Ala Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu 915 920 925
- Ala Gln Pro Gln Ile Cys Thr Ile Asp Val Tyr Met Val Met Val Lys 930 935 940
- Cys Trp Met Ile Asp Glu Asn Ile Arg Pro Thr Phe Lys Glu Leu Ala 945 950 955 960
- Asn Glu Phe Thr Arg Met Ala Arg Asp Pro Pro Arg Tyr Leu Val Ile 965 970 975
- Lys Arg Ala Ser Gly Pro Gly Ile Pro Pro Ala Ala Glu Pro Ser Ala 980 985 990
- Leu Ser Thr Lys Glu Leu Gl<br/>n Asp Ala Glu Leu Glu Pro Asp Leu Asp 995 1000 1005
- Leu Asp Leu Asp Val Glu Val Glu Glu Glu Gly Leu Ala Thr Thr 1010 1015 1020
- Leu Gly Ser Ala Leu Ser Leu Pro Thr Gly Thr Leu Thr Arg Pro 1025 1030 1035
- Arg Gly Ser Gln Ser Leu Leu Ser Pro Ser Ser Gly Tyr Met Pro 1040 1045 1050
- Met Asn Gln Ser Asn Leu Gly Glu Ala Cys Leu Asp Ser Ala Val 1055 1060 1065
- Leu Gly Gly Arg Glu Gln Phe Ser Arg Pro Ile Ser Leu His Pro 1070 1075 1080

- Ile Pro Arg Gly Arg Gln Thr Ser Glu Ser Ser Glu Gly His Val 1085 1090 1095
- Thr Gly Ser Glu Ala Glu Leu Gln Glu Arg Val Ser Met Cys Arg 1100 1105 1110
- Ser Arg Ser Arg Ser Arg Ser Pro Arg Pro Arg Gly Asp Ser Ala 1115 1120 1125
- Tyr His Ser Gln Arg His Ser Leu Leu Thr Pro Val Thr Pro Leu 1130 1135 1140
- Ser Pro Pro Gly Leu Glu Glu Glu Asp Gly Asn Gly Tyr Val Met 1145 1150 1155
- Pro Asp Thr His Leu Arg Gly Thr Ser Ser Ser Arg Glu Gly Thr 1160 1165 1170
- Leu Ser Ser Val Gly Leu Ser Ser Val Leu Gly Thr Glu Glu Glu 1175 1180 1185
- Asp Glu Asp Glu Glu Tyr Glu Tyr Met Asn Arg Lys Arg Arg Gly 1190 1195 1200
- Ser Pro Ala Arg Pro Pro Arg Pro Gly Ser Leu Glu Glu Leu Gly 1205 1210 1215
- Tyr Glu Tyr Met Asp Val Gly Ser Asp Leu Ser Ala Ser Leu Gly 1220 1225 1230
- Ser Thr Gln Ser Cys Pro Leu His Pro Met Ala Ile Val Pro Ser 1235 1240 1245
- Ala Gly Thr Thr Pro Asp Glu Asp Tyr Glu Tyr Met Asn Arg Arg 1250 1260
- Arg Gly Ala Gly Gly Ser Gly Gly Asp Tyr Ala Ala Met Gly Ala 1265 1270 1275
- Cys Pro Ala Ala Glu Gln Gly Tyr Glu Glu Met Arg Ala Phe Gln 1280 1285 1290
- Gly Pro Gly His Gln Ala Pro His Val Arg Tyr Ala Arg Leu Lys 1295 1300 1305

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Thr Leu Arg Ser Leu Glu Ala Thr Asp Ser Ala Phe Asp Asn Pro

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			tat Tyr									534
			tcc Ser	_							_	582
			tgc Cys									630
			tgc Cys 205									678
			tgc Cys									726
			ggc Gly									774
			aat Asn	_	 _	_	_		_	_		822
			aat Asn									870
			tat Tyr 285									918
			tcc Ser				-	_		-		966
			gaa Glu									1014
			gct Ala									1062
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		aca Thr						_			-			125	4
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		ctg Leu												1590	Э
		tcg Ser												1638	3
		ctc Leu												1686	5
		gag Glu												1734	1
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		agt Ser												1878	3

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			agt Ser											2166
			gag Glu	_	_		_		-					2214
			tat Tyr											2262
			gct Ala											2310
_	_		 ttc Phe 765	_	_	_	-	_		-	_	-	_	2358
			gtc Val											2406
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							Lys			a att o Ile		Trp		2694
										t cag s Gln 900				2742
										c ttt r Phe 5				2790
									o As	t tta p Leu				2838
								Th		t gac e Asp			Met	2886
-	_	-		-	 _	_	Āla	-	_	t aga r Arg				2934
_	_	-	_	_			_	-	_	a gac g Asp 980			_	2982
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gac Asp 1000	Ser	c aag Lys			A As			sp	gaa Glu 1010	gag Glu	_		_	3075
gat Asp 1015	Met				G1			al	cct Pro 1025	cag ( Gln				3120
atc Ile 1030	Pro	cct Pro			Th			la .		att (				3165
agg Arg 1045	Ser	_			Se			ro .	_	tac a				3210
tca Ser 1060	Gly	aac Asn			Ту			ly		ttt (				3255
caa Gln 1075	Gly	gtg Val			Ту			ro		agc a Ser '				3300

gaa Glu 1090	Ala									gag Glu 1100	Ile				3345
tcc Ser 1105	Cys				acc Thr 1110	Leu				gtg Val 1115					3390
caa Gln 1120	Glu					Gln				gct Ala 1130					3435
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tac Tyr 1150										caa Gln 1160					3525
cca Pro 1165										aga Arg 1175					3570
ctt Leu 1180										aat Asn 1190					3615
cca Pro 1195										gag Glu 1205			tac Tyr		3660
aac Asn 1210										gag Glu 1220			aag Lys		3705
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cct Pro 1240										cgg Arg 1250				cag Gln	3795
cac His 1255										aaa Lys 1265					3840
cag Gln 1270										gag Glu 1280					3885
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cct Pro 1300					aat Asn 1305				taa	gctca	igttg	ıt gç	ıtttt	ttag	3980

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Glu Asn Lys Leu Ser Ser Leu Ser Asp Leu Glu Gln Gln Tyr Arg Ala 35 40 45

Leu Arg Lys Tyr Tyr Glu Asn Cys Glu Val Val Met Gly Asn Leu Glu 50 55 60

Ile Thr Ser Ile Glu His Asn Arg Asp Leu Ser Phe Leu Arg Ser Val 65 70 75 80

Arg Glu Val Thr Gly Tyr Val Leu Val Ala Leu Asn Gln Phe Arg Tyr 85 90 95

Leu Pro Leu Glu Asn Leu Arg Ile Ile Arg Gly Thr Lys Leu Tyr Glu 100 105 110

Asp Arg Tyr Ala Leu Ala Ile Phe Leu Asn Tyr Arg Lys Asp Gly Asn 115 120 125

Phe Gly Leu Gln Glu Leu Gly Leu Lys Asn Leu Thr Glu Ile Leu Asn 130 135 140

Gly Gly Val Tyr Val Asp Gln Asn Lys Phe Leu Cys Tyr Ala Asp Thr 145 150 155 160

Ile His Trp Gln Asp Ile Val Arg Asn Pro Trp Pro Ser Asn Leu Thr 165 170 175

Leu Val Ser Thr Asn Gly Ser Ser Gly Cys Gly Arg Cys His Lys Ser 180 185 190

Cys Thr Gly Arg Cys Trp Gly Pro Thr Glu Asn His Cys Gln Thr Leu 195 200 205

Thr Arg Thr Val Cys Ala Glu Gln Cys Asp Gly Arg Cys Tyr Gly Pro 210 215 220

Tyr 225	Val	Ser	Asp	Cys	Cys 230	His	Arg	Glu	Cys	Ala 235	Gly	Gly	Cys	Ser	Gly 240
Pro	Lys	Asp	Thr	Asp 245	Cys	Phe	Ala	Cys	Met 250	Asn	Phe	Asn	Asp	Ser 255	Gly
Ala	Cys	Val	Thr 260	Gln	Cys	Pro	Gln	Thr 265	Phe	Val	Tyr	Asn	Pro 270	Thr	Thr
Phe	Gln	Leu 275	Glu	His	Asn	Phe	Asn 280	Ala	Lys	Tyr	Thr	Tyr 285	Gly	Ala	Phe
Cys	Val 290	Lys	Lys	Cys	Pro	His 295	Asn	Phe	Val	Val	Asp 300	Ser	Ser	Ser	Cys
Val 305	Arg	Ala	Cys	Pro	Ser 310	Ser	Lys	Met	Glu	Val 315	Glu	Glu	Asn	Gly	Ile 320
Lys	Met	Cys	Lys	Pro 325	Cys	Thr	Asp	Ile	Cys 330	Pro	Lys	Ala	Cys	Asp 335	Gly
Ile	Gly	Thr	Gly 340	Ser	Leu	Met	Ser	Ala 345	Gln	Thr	Val	Asp	Ser 350	Ser	Asn
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Leu	Val 370	Thr	Gly	Ile	His	Gly 375	Asp	Pro	Tyr	Asn	Ala 380	Ile	Glu	Ala	Ile
Asp 385	Pro	Glu	Lys	Leu	Asn 390		Phe	Arg	Thr	Val 395		Glu	Ile	Thr	Gly 400
Phe	Leu	Asn	Ile	Gln 405	Ser	Trp	Pro	Pro	Asn 410	Met	Thr	Asp	Phe	Ser 415	Val
Phe	Ser	Asn	Leu 420	Val	Thr	Ile	Gly	Gly 425	Arg	Val	Leu	Tyr	Ser 430	Gly	Leu
Ser	Leu	Leu 435	Ile	Leu	Lys	Gln	Gln 440	Gly	Ile	Thr	Ser	Leu 445	Gln	Phe	Gln
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Asn Leu Cys Tyr Tyr His Thr Ile Asn Trp Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp Asn Arg Lys Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His Leu Cys Ser Ser Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu Ser Cys Arg Arg Phe Ser Arg Gly Arg Ile Cys Ile Glu Ser Cys Asn Leu Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val Glu Cys Asp Pro Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys His Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp Gly Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn Ser Phe Ile Phe Lys Tyr Ala Asp Pro Asp Arg Glu Cys His Pro Cys His Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys Ile Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His Ala Arg Thr Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile Leu Val Ile Val Gly Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser Ile Lys Lys Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Thr Ala 

Pro 705		Gln	Ala	Gln	Leu 710	Arg	Ile	Leu	Lys	Glu 715	Thr	Glu	Leu	Lys	Arg 720
Val	Lys	Val	Leu	Gly 725	Ser	Gly	Ala	Phe	Gly 730	Thr	Val	Tyr	Lys	Gly 735	Ile
Trp	Val	Pro	Glu 740	Gly	Glu	Thr	Val	Lys 745	Ile	Pro	Val	Ala	Ile 750	Lys	Ile
Leu	Asn	Glu 755	Thr	Thr	Gly	Pro	Lys 760	Ala	Asn	Val	Glu	Phe 765	Met	Asp	Glu
Ala	Leu 770	Ile	Met	Ala	Ser	Met 775	Asp	His	Pro	His	Leu 780	Val	Arg	Leu	Leu
Gly 785	Val	Cys	Leu	Ser	Pro 790	Thr	Ile	Gln	Leu	Val 795	Thr	Gln	Leu	Met	Pro 800
His	Gly	Cys	Leu	Leu 805	Glu	Tyr	Val	His	Glu 810	His	Lys	Asp	Asn	Ile 815	Gly
Ser	Gln	Leu	Leu 820	Leu	Asn	Trp	Cys	Val 825	Gln	Ile	Ala	Lys	Gly 830	Met	Met
Tyr	Leu	Glu 835	Glu	Arg	Arg	Leu	Val 840	His	Arg	Asp	Leu	Ala 845	Ala	Arg	Asn
Val	Leu 850	Val	Lys	Ser	Pro	Asn 855	His	Val	Lys	Ile	Thr 860	Asp	Phe	Gly	Leu
Ala 865	Arg	Leu	Leu	Glu	Gly 870	Asp	Glu	Lys	Glu	Tyr 875	Asn	Ala	Asp	Gly	Gly 880
Lys	Met	Pro	Ile	Lys 885	Trp	Met	Ala	Leu	Glu 890	Cys	Ile	His	Tyr	Arg 895	Lys
Phe	Thr	His	Gln 900	Ser	Asp	Val	Trp	Ser 905	Tyr	Gly	Val	Thr	Ile 910	Trp	Glu
Leu	Met	Thr 915	Phe	Gly	Gly	Lys	Pro 920	Tyr	Asp	Gly	Ile	Pro 925	Thr	Arg	Glu
Ile	Pro 930	Asp	Leu	Leu	Glu	Lys 935	Gly	Glu	Arg	Leu	Pro 940	Gln	Pro	Pro	Ile

- Cys Thr Ile Asp Val Tyr Met Val Met Val Lys Cys Trp Met Ile Asp 945 950 955 960
- Ala Asp Ser Arg Pro Lys Phe Lys Glu Leu Ala Ala Glu Phe Ser Arg 965 970 975
- Met Ala Arg Asp Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Asp Arg 980 985 990
- Met Lys Leu Pro Ser Pro Asn Asp Ser Lys Phe Phe Gln Asn Leu Leu 995 1000 1005
- Asp Glu Glu Asp Leu Glu Asp Met Met Asp Ala Glu Glu Tyr Leu 1010 1015 1020
- Val Pro Gln Ala Phe Asn Ile Pro Pro Pro Ile Tyr Thr Ser Arg 1025 1030 1035
- Ala Arg Ile Asp Ser Asn Arg Ser Glu Ile Gly His Ser Pro Pro 1040 1045 1050
- Pro Ala Tyr Thr Pro Met Ser Gly Asn Gln Phe Val Tyr Arg Asp 1055 1060 1065
- Gly Gly Phe Ala Ala Glu Gln Gly Val Ser Val Pro Tyr Arg Ala 1070 1075 1080
- Pro Thr Ser Thr Ile Pro Glu Ala Pro Val Ala Gln Gly Ala Thr 1085 1090 1095
- Pro Val Ala Pro His Val Gln Glu Asp Ser Ser Thr Gln Arg Tyr 1115 1120 1125
- Ser Ala Asp Pro Thr Val Phe Ala Pro Glu Arg Ser Pro Arg Gly 1130 1135 1140
- Glu Leu Asp Glu Glu Gly Tyr Met Thr Pro Met Arg Asp Lys Pro 1145 1150 1155
- Lys Gln Glu Tyr Leu Asn Pro Val Glu Glu Asn Pro Phe Val Ser 1160 1165 1170

Arg	Arg 1175		Asn	Gly	Asp	Leu 118(		n Al	a L	eu F	/sp	Asn 1185	Pro	Glu	Tyr		
His	Asn 1190		Ser	Asn	Gly	Pro 1195		o Ly	s A	la G	Slu	Asp 1200	Glu	Tyr	Val		
Asn	Glu 1205		Leu	Tyr	Leu	Asn 1210		r Ph	e A.	la A	Asn	Thr 1215	Leu	Gly	Lys		
Ala	Glu 1220	_	Leu	Lys	Asn	Asn 1225		e Le	u S	er M	1et	Pro 1230	Glu	Lys	Ala		
Lys	Lys 1235		Phe	Asp	Asn	Pro 1240		э Ту	r T	rp A	Asn	His 1245	Ser	Leu	Pro		
Pro	Arg 1250		Thr	Leu	Gln	His 1255		o As	рТ	yr I	eu	Gln 1260	Glu	Tyr	Ser		
Thr	Lys 1265		Phe	Tyr	Lys	Gln 1270		n Gl	у А	rg I	le	Arg 1275	Pro	Ile	Val		
Ala	Glu 1280		Pro	Glu	Tyr	Leu 1285		Gl	u Pl	he S	Ser	Leu 1290	Lys	Pro	Gly		
Thr	Val 1295		Pro	Pro	Pro	Pro 1300		. Ar	g H:	is A		Asn 1305	Thr	Val	Val		
<210 <211 <211 <211	1> 3	897 NA	uscu	lus													
<220 <221 <222	L> C	DS 1)	(389	7)													
	gca	ata	Pro					Asp				a cta s Leu				4.8	8
		Cys 2	_		-		sn I		_	_		t cto		_	_	90	6
-	Gln (	_		-	-	Leu A	_				_	a aac u Asr 45	_		-	144	4

_	_			_	gag Glu			_						_		192
					atc Ile 70											240
		_		_	tac Tyr	_		-				_			-	288
					gaa Glu	_	_		_							336
					aac Asn											384
					aat Asn											432
					act Thr 150											480
					act Thr											528
					tct Ser	_			_	_					-	576
					ttg Leu											624
					ccc Pro											672
					gga Gly 230											720
					gga Gly											768
gtc Val	tac Tyr	aat Asn	cca Pro 260	acc Thr	acc Thr	ttt Phe	caa Gln	ctg Leu 265	gaa Glu	cac His	aac Asn	ttc Phe	aat Asn 270	gca Ala	aag Lys	816
					ttc Phe											864

		tcc Ser											912
		gaa Glu											960
		gca Ala											1008
		gat Asp	_		-				_		_		1056
		aat Asn 355											1104
		att Ile											1152
		gaa Glu											1200
_		gat Asp	_	_			_					_	1248
		tac Tyr											1296
		cta Leu 435											1344
		act Thr											1392
		ctc Leu											1440
_	_	gct Ala		_	-	-	 _	-	-			_	1488
		aat Asn			 		 _	_	_	_	_		1536
		cgc Arg 515						_		-			1584

							atc Ile			16	32
							ctc Leu			168	80
							ttt Phe			17:	28
							gga Gly			17	76
							cac His 605		-	182	24
	_	_	 _			_	cat His		_	187	72
		 _					cac His	_	_	192	20
							atc Ile			196	68
							agc Ser			203	16
							gta Val 685			206	54
							cgc Arg			211	12
							gga Gly			216	50
-					-	 _	aca Thr			220	)8
							ccc Pro			225	56
							atg Met 765			230	)4

		gtt Val													2352
		cag Gln													2400
	_	gat Asp				_	_	_	_			_	_	_	2448
		aag Lys						-	-			_			2496
-	_	gca Ala 835	-	_	_								_		2544
		gat Asp													2592
		gct Ala													2640
		cat His													2688
		act Thr													2736
		cca Pro 915													2784
_		cag Gln			_			_	_		_	_	_	_	2832
		tgg Trp													2880
		gag Glu													2928
		ggt Gly													2976
		cag Gln 995					Glu	_	_	_	gac Asp 100	) Me	-	g gat t Asp	3024

_	gag Glu 1010	_			-	ccc Pro 1015	_	_							3069
	tac Tyr 1025					aga Arg 1030		-			agg Arg 1035	_	_		3114
	cac His 1040					gcc Ala 1045				_	tcg Ser 1050		aat Asn	_	3159
						ggc Gly 1060									3204
	ccc Pro 1070					acc Thr 1075					gag Glu 1080				3249
-	cag Gln 1085					gag Glu 1090									3294
			_	_		gtg Val 1105				-			_	_	3339
	act Thr 1115					gct Ala 1120					ttc Phe 1125		cca Pro		3384
	aat Asn 1130					ctg Leu 1135							act Thr		3429
_	cat His 1145	_				caa Gln 1150	_		_		cct Pro 1155		_		3474
						agg Arg 1165								tta Leu	3519
_						agt Ser 1180									3564
						gag Glu 1195								_	3609
aat Asn	_	-		_	-	gag Glu 1210		_			_	-	_		3654
				_	_	aaa Lys 1225	-		_			-			3699

aac cac agc ctg cca ccc cgg agc acc ctt cag cac cca gac tac Asn His Ser Leu Pro Pro Arg Ser Thr Leu Gln His Pro Asp Tyr 1235 1240 1245	3744
ctg cag gaa tac agc aca aaa tat ttt tat aaa cag aat gga cgg Leu Gln Glu Tyr Ser Thr Lys Tyr Phe Tyr Lys Gln Asn Gly Arg 1250 1255 1260	3789
atc cgc ccc att gtg gca gag aat cct gag tac ctc tcg gag ttc Ile Arg Pro Ile Val Ala Glu Asn Pro Glu Tyr Leu Ser Glu Phe 1265 1270 1275	3834
tcg ctg aag cct ggc act atg ctg ccc cct ccg ccc tac aga cac Ser Leu Lys Pro Gly Thr Met Leu Pro Pro Pro Pro Tyr Arg His 1280 1285 1290	3879
cgg aat act gtg gtg tga Arg Asn Thr Val Val 1295	3897
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<400> 21	
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Thr Val Cys Ala Gly Thr Glu Asn Lys Leu Ser Ser Leu Ser Asp Leu 20 25 30	
Glu Gln Gln Tyr Arg Ala Leu Arg Lys Tyr Tyr Glu Asn Cys Glu Val 35 40 45	
Val Met Gly Asn Leu Glu Ile Thr Ser Ile Glu His Asn Arg Asp Leu 50 . 55 . 60	
Ser Phe Leu Arg Ser Ile Arg Glu Val Thr Gly Tyr Val Leu Val Ala 65 70 75 80	
Leu Asn Gln Phe Arg Tyr Leu Pro Leu Glu Asn Leu Arg Ile Ile Arg 85 90 95	
Gly Thr Lys Leu Tyr Glu Asp Arg Tyr Ala Leu Ala Ile Phe Leu Asn 100 105 110	
Tyr Arg Lys Asp Gly Asn Phe Gly Leu Gln Glu Leu Gly Leu Lys Asn 115 120 125	

Leu Thr Glu Ile Leu Asn Gly Gly Val Tyr Val Asp Gln Asn Lys Phe Leu Cys Tyr Ala Asp Thr Ile His Trp Gln Asp Ile Val Arg Asn Pro Trp Pro Ser Asn Met Thr Leu Val Ser Thr Asn Gly Ser Ser Gly Cys Gly Arg Cys His Lys Ser Cys Thr Gly Arg Cys Trp Gly Pro Thr Glu Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu Gln Cys Asp Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His Arg Glu Cys Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe Ala Cys Met Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro Gln Thr Phe Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala Lys Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His Asn Phe Val Val Asp Ser Ser Cys Val Arg Ala Cys Pro Ser Ser Lys Met Glu Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr Asp Ile Cys Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met Ser Ala Gln Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys Thr Lys Ile 

Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly Asp Pro Tyr

Asn Ala Ile Asp Ala Ile Asp Pro Glu Lys Leu Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp Pro Pro Asn Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile Gly Gly Arg Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln Gln Gly Ile Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala Gly Asn Ile Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr Ile Asn Trp Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp Asn Arg Arg Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His Leu Cys Ser Asn Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu Ser Cys Arg Arg Phe Ser Arg Gly Lys Ile Cys Ile Glu Ser Cys Asn Leu 

Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val Glu 

Cys Asp Ser Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys His 

Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp Gly 

Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn Ser 

Phe Ile Phe Lys Tyr Ala Asp Gln Asp Arg Glu Cys His Pro Cys His 

Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys Ile 610 615 620

Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His Ala Arg Thr 625 630 635 640

Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile Leu Val Ile 645 650 655

Met Ala Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser Ile Lys Lys 660 665 670

Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val Glu Pro Leu 675 680 685

Thr Pro Ser Gly Thr Ala Pro Asn Gln Ala Gln Leu Arg Ile Leu Lys 690 695 700

Glu Thr Glu Leu Lys Arg Val Lys Val Leu Gly Ser Gly Ala Phe Gly 705 710 715 720

Thr Val Tyr Lys Gly Ile Trp Val Pro Glu Gly Glu Thr Val Lys Ile
725 730 735

Pro Val Ala Ile Lys Ile Leu Asn Glu Thr Thr Gly Pro Lys Ala Asn 740 745 750

Val Glu Phe Met Asp Glu Ala Leu Ile Met Ala Ser Met Asp His Pro
755 760 765

His Leu Val Arg Leu Leu Gly Val Cys Leu Ser Pro Thr Ile Gln Leu 770 775 780

Val Thr Gln Leu Met Pro His Gly Cys Leu Leu Asp Tyr Val His Glu 785 790 795 800

His Lys Asp Asn Ile Gly Ser Gln Leu Leu Leu Asn Trp Cys Val Gln 805 810 815

Ile Ala Lys Gly Met Met Tyr Leu Glu Glu Arg Arg Leu Val His Arg 820 825 830

Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys 835 840 845

- Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Glu Gly Asp Glu Lys Glu 850 855 ,860
- Tyr Asn Ala Asp Gly Gly Lys Met Pro Ile Lys Trp Met Ala Leu Glu 865 870 875 880
- Cys Ile His Tyr Arg Lys Phe Thr His Gln Ser Asp Val Trp Ser Tyr 885 890 895
- Gly Val Thr Ile Trp Glu Leu Met Thr Phe Gly Gly Lys Pro Tyr Asp  $900 \hspace{1cm} 905 \hspace{1cm} 910$
- Gly Ile Pro Thr Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg 915 920 925
- Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Val Met Val 930 935 940
- Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Lys Glu Leu 945 950 955 960
- Ala Ala Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Tyr Leu Val 965 970 975
- Ile Gln Gly Asp Asp Arg Met Lys Leu Pro Ser Pro Asn Asp Ser Lys 980 985 990
- Phe Phe Gln Asn Leu Leu Asp Glu Glu Asp Leu Glu Asp Met Met Asp 995 1000 1005
- Ala Glu Glu Tyr Leu Val Pro Gln Ala Phe As<br/>n Ile Pro Pro Pro 1010 1015 1020
- Ile Tyr Thr Ser Arg Thr Arg Ile Asp Ser Asn Arg Ser Glu Ile 1025 1030 1035
- Gly His Ser Pro Pro Pro Ala Tyr Thr Pro Met Ser Gly Asn Gln 1040 1045 1050
- Phe Val Tyr Gln Asp Gly Gly Phe Ala Thr Gln Gly Met Pro 1055 1060 1065
- Met Pro Tyr Arg Ala Thr Thr Ser Thr Ile Pro Glu Ala Pro Val 1070 1080

Ala Gln Gly Ala Thr Ala Glu Met Phe Asp Asp Ser Cys Cys Asn 1085 1090 1095

Gly Thr Leu Arg Lys Pro Val Ala Pro His Val Gln Glu Asp Ser 1100 1105 1110

Ser Thr Gln Arg Tyr Ser Ala Asp Pro Thr Val Phe Ala Pro Glu 1115 1120 1125

Arg Asn Pro Arg Gly Glu Leu Asp Glu Glu Gly Tyr Met Thr Pro 1130 1135 1140

Met His Asp Lys Pro Lys Gln Glu Tyr Leu Asn Pro Val Glu Glu 1145 1150 1155

Asn Pro Phe Val Ser Arg Arg Lys Asn Gly Asp Leu Gln Ala Leu 1160 1165 1170

Asp Asn Pro Glu Tyr His Ser Ala Ser Ser Gly Pro Pro Lys Ala 1175 1180 1185

Glu Asp Glu Tyr Val Asn Glu Pro Leu Tyr Leu Asn Thr Phe Ala 1190 1195 1200

Asn Ala Leu Gly Ser Ala Glu Tyr Met Lys Asn Ser Val Leu Ser 1205 1210 1215

Val Pro Glu Lys Ala Lys Lys Ala Phe Asp Asn Pro Asp Tyr Trp 1220 1225 1230

Asn His Ser Leu Pro Pro Arg Ser Thr Leu Gln His Pro Asp Tyr 1235 1240 1245

Leu Gln Glu Tyr Ser Thr Lys Tyr Phe Tyr Lys Gln Asn Gly Arg 1250 1255 1260

Ile Arg Pro Ile Val Ala Glu Asn Pro Glu Tyr Leu Ser Glu Phe 1265 1270 1275

Ser Leu Lys Pro Gly Thr Met Leu Pro Pro Pro Pro Tyr Arg His 1280 1285 1290

Arg Asn Thr Val Val 1295